Infographics: Ways of Seeing and Reading Science in Media /
Infográfico: modos de ver e ler ciência na mídia

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ABSTRACT

This article aims to analyze an infographic of scientific popularization in media (from now on DCM, the acronym for the Portuguese phrase *divulgação científica midiática*. In this infographic we analyze scientific information optimized by means of plastic (eidetic, chromatic, topological) and verbal resources. We evidence that infographics' multisemiotic configuration uses descriptive-explanatory and argumentative procedures. The target-subject may be favorable or not to the truth syncretically built by means of words and images. We can conclude that the DCM infographic: (i) performs a demonstrative-argumentative action, when presenting evidences; (ii) diffuses facts and scientific phenomena in a mediatic way; (iii) integrates actions towards formal and informal scientific literacy.

KEYWORDS: Scientific Popularization in Media; Infographic; Description; Explanation; Argumentation; Literacy

RESUMO

Este artigo objetiva analisar um infográfico de divulgação científica midiática (DCM). Analisa-se, no infográfico, a informação da ciência otimizada por meio de recursos plásticos (eidéticos, cromáticos, topológicos) e verbais. Mostra-se que a configuração multissemiótica da infografia utiliza procedimentos descritivo-explicativos e argumentativos. O sujeito-alvo pode situar-se favorável ou não à verdade construída sincreticamente mediante palavras e imagens. Pode-se concluir que o infográfico DCM: realiza ação demonstrativo-argumentativa, quando apresenta evidências; divulga midiaticamente fatos e fenômenos científicos; integra ações de letramento científico formal e informal.

PALAVRAS-CHAVE: Divulgação científica midiática; Infográfico; Descrição-Explicação; Argumentação; Letramento

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Introduction

John Berger (1972)[1] claims that seeing comes before words. He argues, therefore, that our apprehension of images is different from other readings and that it is accomplished even when the image is not followed by a word. This conception of meaning and reading aligns with what Tattiana Teixeira (2011, p.9) asserts by stating that "[w]hen we have only the text in front of us, we try to imagine and conceive, in our minds, the image described by those words without never being sure about what it really is."[2] Teixeira (2011) sets out from this assumption to support the idea that, by having both image and text, we do understand what was expressed more quickly and precisely.

Setting out from the context of scientific popularization in media (DCM – the acronym for the Portuguese phrase *divulgação científica midiática*), we verify that different languages have been pursued in order to better present and signify information. The infographic represents a way of textualizing information. Examples range from visual road maps through microscopic worlds of the human body (which explain complex processes) up to curious cartographies that outline and detail very ancient historical facts – all of this presented in an accurate and optimized visually-written way.

In parallel, in the backstage of DCM infographics, explanatory and descriptive processes take form of drawings or other types of images. Moreover, these processes take place especially by means of an art that ratifies a "making-know" that is associated with a "making-feel," all of which is upon careful chromatism, thoughtful topographies/topologies and/or planned eidetic procedures. Thus, the infographic in the mediatic scene of science multisemiotizes what it communicates, while, being such a peculiar text, syncretizes image and word in an original and effective way. However, besides this explanatory role based on description and narration, the infographic, in DCM, has undertaken a notable argumentative function in some of its uses, supporting an intention of "making-act." Apart from a suggestion or demonstration, this type of text supports the idea of a change in thought, behavior and action, making use of descriptions and explanations as evidence and proof so that such changes are implemented through collective and individual actions.

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[1] BERGER, J. *Ways of Seeing*. London: Penguin Books, 1972.
[2] Text in Portuguese: "Quando temos apenas o texto à nossa frente, tentamos imaginar e conceber em nossa mente a imagem descrita naquelas palavras sem nunca termos certeza do que realmente ela é."

Infographing is organizing a syncretic text. In the origin of the word "syncretic," *crethos* refers to a greater complexity: *krétizó*, indicating "acting like a Cretan and, by extension, being an impostor"; "in French, *syncretisme*, meaning 'union of two longstanding enemies against a third part,' as explained by the Houaiss dictionary" (TEIXEIRA, 2008, p.174).[3] The word syncretism assumes, therefore, the meaning of "fusion of diverse, varied elements" (TEIXEIRA, 2008, p.174)[4] in a sort of unity. Consequently, it establishes the idea of a significant simultaneous set, highlighting the effect or the result over the matter or the process.

Teixeira (2008, p.180) asserts that

> With the expansions of the concept of syncretism, certain manifestations must be recalled here, which amplify the meaning of the term, making it reach, for example, semiotics that make use of associations between languages, stemming from qualities that refer to the nature of one of them. This applies to the associations of verbal language with visual and sonorous languages, when the quality of the verbal material itself is expanded or enhanced.[5]

This implies recognizing that a syncretic semiotics demands an exam that might be focused on units, as it needs to re-discover the particular operation. Therefore, the analysis of the syncretic enunciative strategy of such languages in a formal unity of meaning is necessary.

According to Greimas and Courtés (1982), syncretism is a procedure, or a result of this procedure, which superimposes a relationship between two nonhomogeneous terms or categories and brings them together by means of a semiotic or linguistic greatness.[6] In the infographic to be analyzed hereinafter, for instance, languages of plastic and verbal manifestation are activated. It allows mathematic-numerical manifestations (numbers, graphs, among others) to be activated as well.

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[3] Text in Portuguese: "agir como cretense e, por extensão, ser impostor"; "pelo francês, *syncretisme*, 'união de dois antigos inimigos contra uma terceira pessoa', segundo explica o dicionário Houaiss."
[4] Text in Portuguese: "fusão de elementos diversos, variados."
[5] Text in Portuguese: "Devem ser lembradas aqui, com expansões do conceito de sincretismo, certas manifestações que ampliam o sentido do termo, fazendo com que alcance, por exemplo, semióticas que mobilizam associações entre linguagens, a partir das qualidades referentes à natureza de uma delas. É o caso das associações da linguagem verbal às linguagens visual ou sonora, quando se adensa ou amplia ao máximo a própria qualidade material do verbal."
[6] GREIMAS, A. J.; COURTÉS, J. *Semiotics and Language*: an Analytical Dictionary. Bloomington: Indiana University Press, 1982.

In this introduction, we point out the specific function of Linguistics, once, taking the infographic as its object of study – in DCM context -, it contributes to the understanding of the emergence of new languages or new arrangements of meaning production and communication in all different spheres of human activity. This author's doctoral dissertation (SOUZA, 2013), which examined a *corpus* of infographics selected from magazines of scientific popularization in media from 2009 to 2013, is our reference. This investigation gave rise to subsequent studies on the presence of infographics in several types of texts in media, with different purposes[7] and aims.

It is important to highlight that Charaudeau (2008a) assigns two fundamental purposes to the mediatization of science: to inform (making-know) and to captivate (making-feel/rising the reader's interest for the reading). Similarly, this discourse is hybrid as it intersects its mediatic discourse with scientific and didactic ones (CHARAUDEAU, 2008a). That is the reason why the producer of the infographed text aims to enable the reading audience. In other words, it becomes more and more relevant that this reader feels attracted to, understands and evaluates daily emerging scientific themes, displayed through infographics. Often, the purpose of "making-know" - optimized through an image in symbioses with the word - may motivate a "making-do" in order to change.

Based on the above, this paper intends to show, first, how the double page of an infographic is designed, focusing on climate changes, as texts that mobilize descriptive (CHARAUDEAU, 1992, 2008b) and explanatory processes (MOIRAND, 1999), published in the magazine "*Saúde! É vital*" [Health! It is vital]. Second, it aims to explain how infographics activate different modes of production and comprehension of such text, by means of descriptive-explanatory processes that consolidate an argumentative action (PERELMAN, 2002), oriented towards a change in the reader's behavior (after the reader has understood the informed fact). For these ends, the paper brings a brief description of an infographic that may support a "making-do" purpose, corroborating the complex elaboration of this textual discursive genre.

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[7] Purposes, generally defined, are objectives that express the intentions texts present. However, it is important to point out that Adam (2011, p.61) refers to goals as the effectiveness of a discursive action realized through a text; Charaudeau (2006, p.69) differentiates purposes from objectives, locating this (*but*) as part of the intentions of each one, as providing direction to human action and guidance for its purpose. Purpose (*visée*), for this author, refers to the issue of influence. Thus, he establishes the prescriptive (making-do), informative (making-know), incentive (making-believe) and the *pathos* (making-feel) purposes.

From Schemes to Infographics

The first elucidation of this paper focuses on schemes, once they relate closely to infographics. Infographics are designed from schemes, because essential ideas concerning a theme are privileged in the composition of infographics. De Pablos (1999, p.104) explains that the term comes from the Latin word *schema* and from the Greek *figura*: "it is the graphical or symbolic representation of immaterial things" or "the idealization of something,"[8] employing only the most significant lines or characters.

The second point of explanation relates to the concept of maps, as it very commonly appears in infographics alone or in a set with other texts of different natures and genres. In a canonical or geographical sense, maps (DE PABLOS, 1999) are representations of the Earth (or of some part of it) in a flat structure. The word derives from the Latin word *mappa*, which means tissue or napkin, once in the past these flat structures were used as supports for drawing maps, making it easier to transport them during trips and wars. In turn, infographic maps or infomaps, as De Pablos (1999, p.105) postulates, are "representations of a geographic fragment with the addition of journalistic textual information, which offers a new complementary element to the main information and clarifies the *where* of the information and, in some occasions, provides better understanding of the *how*."[9] Thus, infomaps may perform several roles, but their goal is essentially to convey how the territory drawn is presented: it locates facts, specifies phenomena, and even tells the history of the assorted information. We may observe that explanatory, narrative and descriptive mechanisms are part of the essence of these infographics and infomaps (SOUZA, 2013) and that this role may be extended for evidence and argumentation purposes.

The way to cartographically represent nominates, locates spaces, and contributes to speed up meaning production. All of this is oriented towards the reader's action of understanding. The cartographical culture comes from ancient times, from an educated society that started to use maps in order to "move around little explored territories"[10]

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[8] Text in original in Spanish: "es la representación gráfica y simbólica de cosas inmateriales" […] "idealización de una cosa."

[9] Text in original in Spanish: "representación de un fragmento geográfico con el añadido de información textual periodística, que origina un nuevo elemento complementario de la información principal, que aclara el dónde de la información y en ocasiones facilita el mejor entendimiento del cómo."

[10] Text in original in Spanish: "moverse por territorios poco transitados."

(DE PABLOS, 1999, p.106). Sometimes if an infographic or a set of infographics provides "a more detailed map [...], (it) will even describe what the portrayed territory is like, where the facts took place, or where something is expected to occur, and what is being announced by the journalist (who may also be the scientist)" (DE PABLOS, 1999, p.109 - information in parenthesis added by the author).[11] Thus, it is possible for the geographic source to become a starting point for the information and to turn into a type of reference or anchoring, as it is provided by descriptive procedures. Hence, it may constitute evidence of an action that is suggested, required, or demanded.

In this analysis, megainfographics are also considered. They are characterized (i) by presenting, generally, a double page spread, (ii) by addressing themes that are relevant and currently interesting (extremely appropriate for DCM infographics), (iii) by gathering a larger amount of information, (iv) by its similarity with a poster and, finally, (v) because they reveal a team work that "is the supreme art inside this genre, in case the theme is adequately selected and properly documented" (DE PABLOS, 1999, p.148).[12] These aspects can be observed in the image analyzed below, reproduced in Figure 1.

The double-page article published in the magazine is arranged so that one starts reading the text from the left, according to the Eastern format. Also, the title is designed as a question and the word *chover* (rain) is highlighted ("*Será que vai chover*?") ("Will it *rain*?"). This word focuses the attention of the reader, who reads and sees the theme of the infograhic related to rain. Based on information from studies that have already been endorsed, the discursive aim is to make readers know about/feel/believe in climate changes related to rain cycles (or not) in the country. A sentence under the title warns that "Climate changes impact Brazil from north to south." Below it, still on the left of the double page, several images indicate the subthemes of the text along with phrases written in capital letters (CHANGE OF CULTURE, WARMER BRAZIL, MIGRATING COFFEE, THE AMAZON WILL SUFFER (this is a clause), RISK IN THE SLOPE).

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[11] Text in original in Spanish: "si es un mapa más completo e infográfico, incluso nos relatará como es ese territorio mostrado, donde los hechos han sucedido o donde va a transcurrir algo ya previsto y que el periodista nos está anunciando."
[12] Text in original in Spanish: "es el suprema arte, dentro de este género sí el tema está bien seleccionado y adecuadamente documentado."
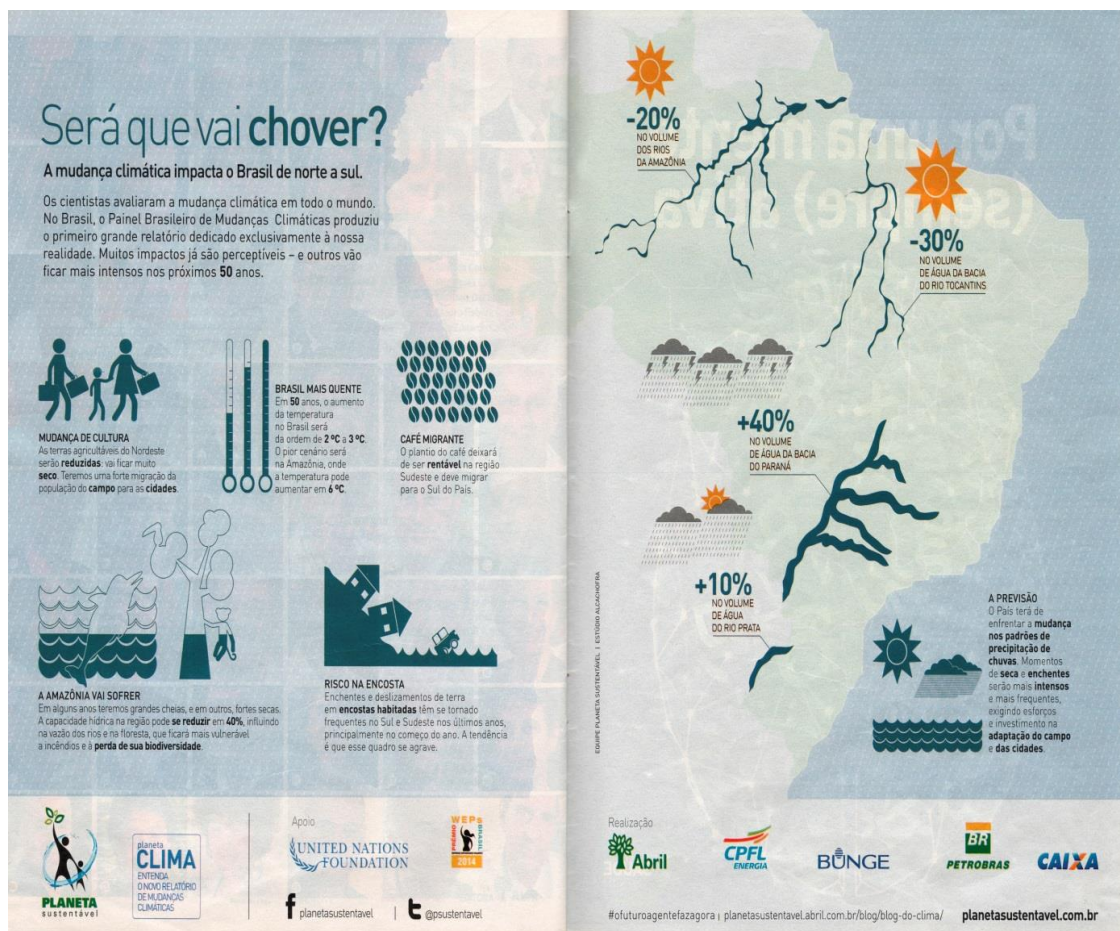
Fig.1 – Infographic that aims to make: feel, know and act. Source: *Saúde é Vital* (2014. pp.50-51).

To the right, an infomap depicts, in the background, South America and outlines Brazil, with light marks of the lines that demarcate the borders of the Brazilian states. These light lines locate each state and, consequently, the regions of the country. The Atlantic Ocean is distinguished by a dark blue shade, bringing a caption that provides the conclusion, in the bottom right corner of the image, under the head "THE FORECAST." Across the bottom of both pages, there are logos showing the partners of this mediatization work led by the *Editora Abril's Planeta Clima* logo. There is a list: first, "Sustainable planet," followed by "*Planeta CLIMA*: understand the new report on climate changes." Then, the identification of the support of United Nations Foundation, the logos of Facebook and Twitter, identifying that one may contact the creators and followers of this campaign through those social networks. There are also the logos of the WEPs Prize and Brasil 2014 Prize on the left. On the right, the sponsors show their respective logos, under the word "Execution": *Abril, CPFL Energia, Bunge, Petrobrás,*

Caixa. Finally, there is the address of the blog *Planeta sustentável.com.br*, where the reader may be able to find more and updated information about new findings. The list of the logos identifies the informers and supporters of behavior changes based on the report *Painel Brasileiro de Mudanças Climáticas* (Brazilian Panel on Climate Changes).

The way the text is expressed and arranged in these two pages reveals the descriptive process that derives from the procedures classified by Charaudeau (1992, 2008b) as naming, locating, qualifying. After the title and the sentence below, there is a short introductory text that reports the assessments made by scientists on climate changes in Brazil in the cited worldwide report, which is prospective for the next fifty years.

The figure below details the infographic under analysis.

Title	Image	Theme	Verbal description/ evidence arguments (evidence/finding)
CHANGE OF HABITS	A family of three carrying suitcases and walking.	Drought in the Northeast and migration to the city.	"Agricultural land in the Northeast will *reduce*: it will get very *dry*. There will be a large-scale migration of the population from the *country* to the *cities*."
WARMER BRAZIL	Three thermometers showing the ascending order of temperature rise.	Temperature rise	"In *50* years, temperature rise in Brazil will be of about *2ºC* to *3ºC*. The worst scenario will be in the Amazon, where the temperature may increase about *6ºC*."
MIGRATING COFFEE	Several coffee seeds lined up in the drawing.	Shifting coffee bean crops from the Southeast to the South.	"Growing coffee will no longer be *profitable* in the Southeast region and it might migrate to the south of the country."
THE AMAZON WILL SUFFER	Images of dolphins/ Amazon river dolphins in the water, trees and a monkey, referring to the fauna and flora of the Amazon.	Floods and droughts, in some years, reduced water discharge and the vulnerability of the forest and of the system in general.	"In some years there will be floods, and in others, hard droughts. The water discharge in the area may be *reduced to* up to *40%* and may influence the flow of the rivers as well as the forest, which will be more vulnerable to fires and might *lose its biodiversity*."
RISK IN THE SLOPE	A slope with houses falling down into the river, where a car is	Floods and landslide in slopes that have dwellers (South and	"Floods and landslide in *populated slopes* have become common in the

	already floating.	Southeast)	South and Southeast in the past years, mainly in the beginning of the year. There is propensity that this scenario gets worse."
INFOMAP	In the North and in the Northeast, drawings of rivers shrinking as they follow their paths; in the Center-West, drawings of clouds and lightning with stormy rain; to the South, drawings of voluminous river paths with images of the sun and heavy rain.	Climate changes in the Brazilian regions.	- 20% IN THE VOLUME OF RIVERS IN THE AMAZON - 30% IN THE VOLUME OF WATER IN THE *TOCANTINS* RIVER BASIN + 40% IN THE VOLUME OF WATER IN THE *PARANÁ* RIVER BASIN + 10% IN THE VOLUME OF WATER IN THE *PRATA* RIVER
THE FORECAST	Drawings of the Sun, the sea and clouds, showing: hot weather, drought; water; air, the focus of the issues on the climate and the environment in which we live.	Final forecast for the country.	"The country will face *changes in the patterns of rain precipitation*. Moments of *drought* and *flood* will be more *severe* and more frequent, demanding effort and investment for *the country* and the **cities** to *adapt*."

Fig.2 – Description of images and infographic textboxes.

Syncretically, the text and the images present data in a descriptive form: they name or broach the fact and, then, locate each finding previously evidenced by scientists in the mentioned study. We may also observe the visual aid of highlighting in bold type the terms that are fundamental in the information of the captions in each segment in the map and in the page to the left, transcribed in the right column of Fig.2.

The description firstly gives names (titles and images of each impact identified by the research, written-visualized in the left page, listed in the sixth paragraph of section two in this paper). Simultaneously, it locates places and shows temperature numbers, for instance, thus incorporating a descriptive action of qualifying. In page 50, to the left, the described facts are detailed and highlight excerpts of the research; on page 51, to the right, more general information and statistics about each region are included, infographically mapped. To the far bottom right there is an image with a caption that offers the Forecast and confirms a warning and a kind of call for urgent

actions (this is marked by the excerpt "demanding effort and investment …adaptations…"). For the argumentation field, it constitutes an urgency argument (CARNEIRO; SEVERO; ÉLER, 2008, p.163), [13] which is an attempt to immobilize the opponent's argument by trying to propose a new solution of longer elaboration. It may even appear to be a prevention argument,[14] because of the urgent character attributed to the solutions that the situation demands. Such argument is characterized by operating along with the urgency argument and by demanding a solution in order to prevent a future reality foreseen by the evidences. Perelman and Oldebrechts-Tyteka (2002, p.77) corroborate it, stating that "[t]he facts that are admitted may be either facts of observation – and this will be, perhaps, the most important fraction of the premises –, or supposed, conventional facts, possible or probable facts."[15] As a result, described and reported facts in the several text boxes arranged in the double page of the infographic turn into crucial proof and evidence of the urgent change that is required.

Moirand's studies (1999) assert that, in the domain of discourses for knowledge diffusion, explanation is a category of analysis. That is because it encompasses cognitive and communicative dimensions of a prototypical discursive mode linked to specific discursive genres. Thus, questioning the nature of such category, she asks: (i) would the explanatory mode be a discursive mode opposed to the descriptive, narrative, argumentative, and prescriptive ones? (ii) Would the explanatory mode be a speech act, in a pragmatic category of illocutionary order? (iii) Or would the explanatory mode be a cognitive-discursive procedure that differentiates, on the one hand, definitional or illustrative procedures (of a didactic order), and, on the other, accounts and persuasions (of a polemical order)?

In view of the set of descriptions analyzed above, which name, locate and qualify in order to report a collection of data on climate changes in the country, the table recognized does compose an explanation (MOIRAND, 1999). Such cognitive-discursive explanation differentiates definitional or illustrative procedures (of didactic order), properly visualized by the drawings and the captions. We can also notice that, visually and semiotically, the images are constituted of scheme drawings that are

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[13] Text in Portuguese: "Argumento da premência."
[14] Text in Portuguese: "Argumento da prevenção."
[15] Text in Portuguese: "Os fatos que são admitidos podem ser, quer fatos de observação – e esta será, talvez, a fração mais importante das premissas –, quer fatos supostos, convencionais, fatos possíveis ou prováveis."

similar, for instance, to traffic warning signs. This scheme format of quick lines achieves effects of meaning and fast communication, characteristics of the infographic presented.

The right page offers other explanations presented as an infomap: the map is topologically positioned in the center-right of the double page and outlines each region and their respective climate problem, according to the scientific research previously mentioned. That is the reason why it is possible to claim that such explanations disclosed in the imagetic-visual descriptions are justifications of the goal of motivating the reader to engage in these urgent changes. Other actions will derive from this action, which may result in the citizens' taking part (or not) in actions and in decisions that may materialize solutions.

The reasoning above is in accordance with Charaudeau's claim (2008b, p.131) that naming, locating, and qualifying integrate a discursive procedure of subjective construction of the world. Besides, the text aims to instigate, which is the action-purpose of the promotional discourse. In this sense of "making-do," the triangular relationship that gets updated is the following:
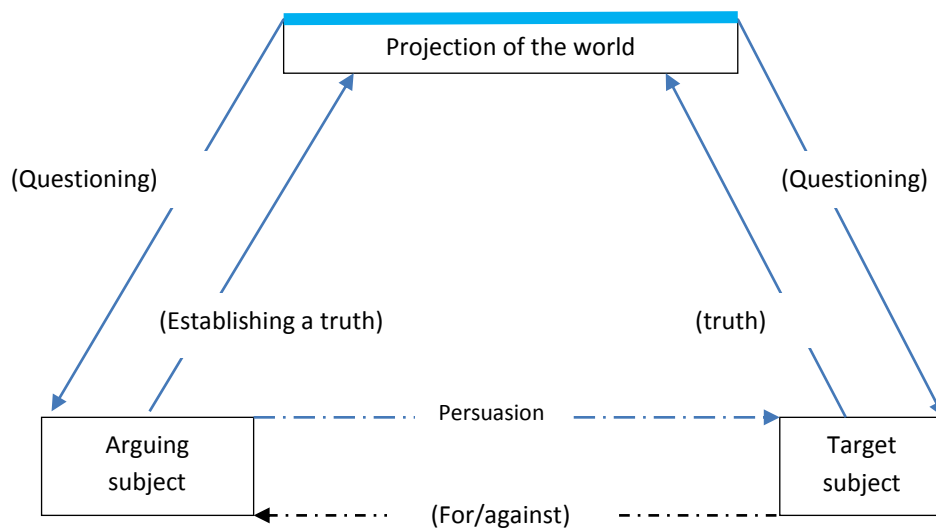

Fig.3 – Definition and function of the argumentative mode. Redrawing of Charaudeau's scheme (2008b, p.204).

Sponsored by the companies whose listed logos where identified before, an individual states an argument that addresses an interlocutor who reasons; the first declares a belief, elaborated from the scientific data obtained from studies carried out

worldwide and in the country. The enunciator-arguer subject provides an explanation that attempts to persuade and encourage the interlocutors to change their behavior, starting and being part of the changes. The text representation, made through drawings of simple and clear outlines, and the captions in regular cromatisms of different shades are topologically located in the pages. On the one hand, scenes are displayed and, on the other, the situation of the changing climate in the country is mapped. The infomap in shades of blue and gray presents shapes (eidetic) characterized by more striking lines and by the color yellow as a contrast, distinguishing the sun and the rain. These plastic elements (OLIVEIRA, 2004, p.121) constitute the chain of visual categories that, in syncretism with verbal categories, produce the textual manifestation infographed.

A world is projected from the question that starts with "*Será*" ("Will it…") (title), whose answer ends up being inferable: "Yes, and the datum, the evidence, is here: (info)graphics/map." The forecast, included in the end of the infographic, under the map, contains verbs in the future and the sentence that says: "[…] **demanding** effort and investment for the country and the cities to adapt," urging the reader, by means of raising awareness to the current situation, to join this requirement to seek and carry out solutions, adaptations and changes.

The modes of saying, verbally and visually, descriptively and explanatorily make the required modification of behavior achievable. It is possible to verify that there is a search for individuals and communities to make the changes and adaptations effective, before the foreseen reality materializes. The reasoning processed – according to Figure 3 – considers the body of knowledge oriented to the target audience, "hoping to lead them to share the same truth (persuasion), knowing that they may accept (being *in favor*) or deny (being *against*) the argumentation."

In parallel, "seeing assumes knowledge that only operationalizes as it goes into the web of meanings that allow, when possessing knowledge, to reach another one, in the complexity in which knowledge presents itself" (OLIVEIRA, 2004, p.19).[16]

Aspects of the (multi)semiotization are corroborated, according to Pietroforte (2007), who examines several visual texts. In his studies on visuality, the author presents three possible and capable categories of analysis in texts, brought by Floch

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[16] Text in Portuguese: "o ver pressupõe um saber que só se operacionaliza na medida em que se adentra na teia de significados que permite, de posse de um saber, atingir um outro, na complexidade em que o saber se apresenta."

(1985). These categories are chromatic (color), eidetic (shape), and topological (arrangement of figurativized elements), which produce "effects of meaning" upon certain uses in images or in set of images. Consequently, the infographic examined presents a blue shade as the base of the pages (which gets darker, even grayish, in the drawings) that shapes each image in the left page (images in the schemes). The drawings show the facts foreseen scientifically through the contrast between the deepness of the gray and the blue shades and between the thin and thick lines of the drawings. The shapes made with denser and thicker lines or thinning lines of rivers in the infomap demonstrate an effect of meaning (stronger, more intense lines X lighter, less intense lines) for more or less volume of rain in specific regions of the map. This is also true for the lines in the drawing of rain and lightning, and the yellow color of the sun (the sun X the rain; the flood X the drought), highlighted in the middle of the map, and whose color works as a background for the warning messages in each region (category image X background). The drawing synthesis in the Forecast causes an effect of highlighting the sun, the sea and the clouds, (semi)symbolizing the spaces where the problems occur and where they will happen more intensely according to the studies mentioned in the beginning of the double page. As for topology, remarks about the image and text layout in both pages were already made, but it is important to present the following scheme.

We consider that (a) the enunciators/producers design the infographed article as spokespeople of companies that sponsor the page and convey commitment (or interest) to this situation. They use the display in the infographic to disclose their work and to show that they are engaged in this battle; (b) the page describes and reports a situation that must be worked out/solved by raising awareness among citizens; (c) the page communicates knowledge that supports the urge to change (adapting = "effort and investments" – p.51); (d) the verb-visualized modes of saying imply different kinds of literacy because it presupposes being literate verbally, plastically, visually and also scientifically.
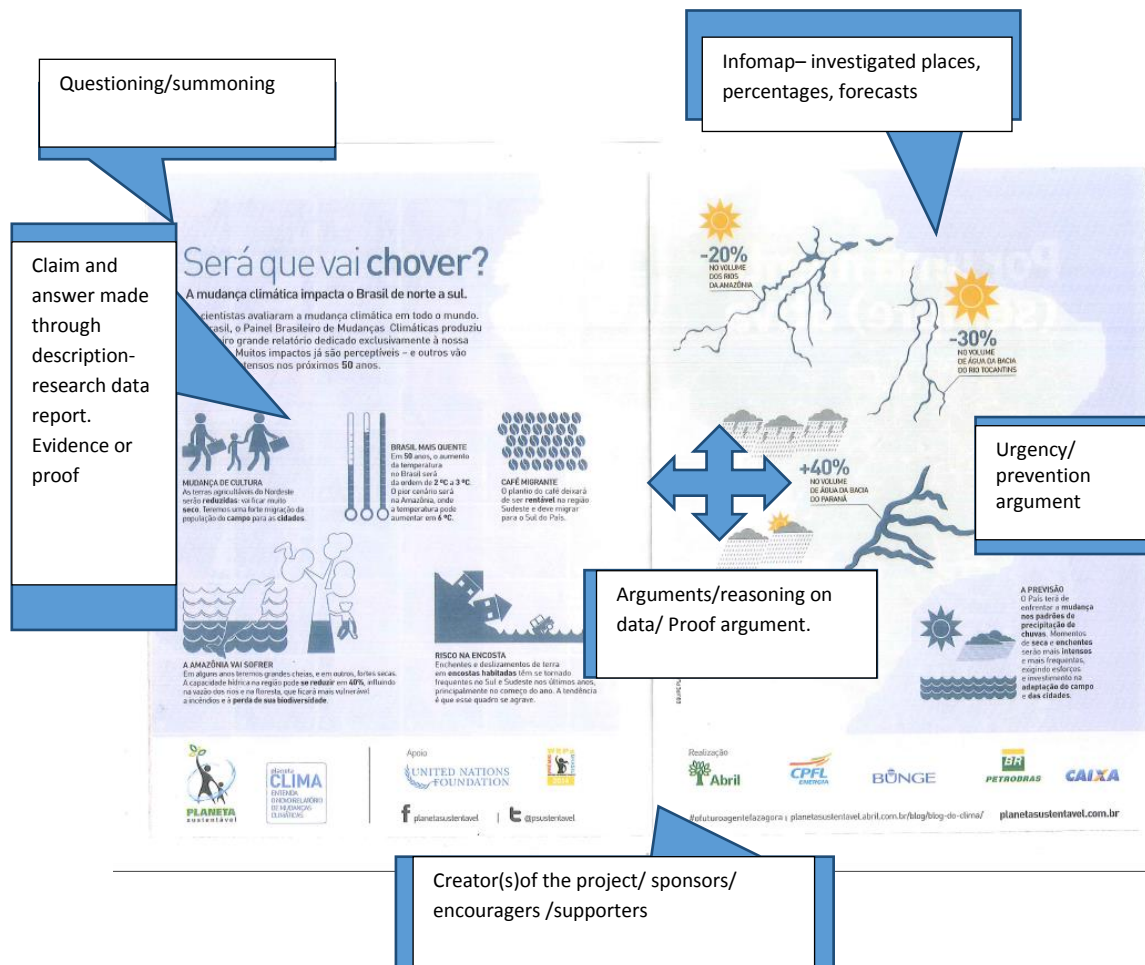
Fig. 4 – Analytical summary in images and captions.

Thus, it is possible to assert that infographics fulfill the functions of "making-feel" (plasticity of text expression through verbal and numerical data described and explained plastically); "making-know" (information presented); and "making-do" (warning, through arguments based on proof and evidence, e.g., urgency and prevention), that is, of taking action. The text calls and involves the interlocutor with the question expressed in the initial question (title). Then, it offers a dramatic answer, unfortunately, even if it does not clearly state "yes, it will rain a lot in some places in Brazil" or "no, in other places of the country."

Conclusion

From the starting point that scientific popularization favors the growing emergence of new genres, exemplified by what the midiatization of science has proved, infographics are already virtually and graphically an example of that. Besides, the infographic recollects rupestrian and medieval roots and is a text that has been (re)configured in contemporaneity. It is, for this reason, another genre/text that is born inside the culture and that depends on it, once it proves, in this analysis, the place where Science is located nowadays.

Scientific popularization in media and the use of printed or virtual infographic are conceived as something created *by* and *to* a new configuration of the relationship between science and society. There is the consolidation of simple and complex communication at the same time, in which image and text say a lot through the detail and syncretism they establish. Fields formerly surrounded by hermetic scientific language are opened up in order to offer knowledge to broader audiences. Opportunities to enable people to read about everyday facts and phenomena and about Science in people's life through text and image are offered.

We do not argue that infographics should simply make the reading activity easier, since it creates a new, special, and specific mode of saying. We corroborate that informative optimization requires, rather, new literacies and innovative production abilities and reading comprehension.

Concerning literacy, it is worth mentioning Rojo's words (2009, p.10): literacy is "[…] a diversified set of situated social practices that comprise signal systems, such as writing or other language modalities to produce meaning."[17] As the quoted author asserts, this concept must consider multiple social contexts, from family to society. The text analyzed, although based on appeals for consumption directed to those who are paying for reading it, is worthwhile because it offers opportunities for plural literacy since it requires a body of knowledge from various areas of the reader's life.

Furthermore, from the point-of-view of the analyst of the text under study, it is noteworthy to claim, once again, the precise optimization that takes place when the production of an infographed text is successful in its plastic and aesthetic planning.

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[17] Text in Portuguese: "[...] um conjunto muito diversificado de práticas sociais situadas que envolvem sistema de signos, como a escrita ou outras modalidades de linguagem para gerar sentidos."

Several ideas are, after all, read through words; nevertheless, many others are learned by means of the imagetic concision and even by the style of the images. We present here the drawing of a comprehensive template used in infographics that urges care and arrangement of actions, which are not only possible but utterly urgent for people's well-being. Resources from plastic semiotics, once again, consolidate their effects of meaning on words and use of letters and numbers highlighted by their type, size or by emphasis techniques such as bold type. They evidence that reading will always be much more than simply decoding letters and that science is made through flavors/knowledge, shapes, topologies and colors, multiple modes that may have several possible meanings in a chain of sensitive qualities of words and images.

All the above confirms the act of argumenting that is already expressed in the choices and in the arrangement of words and phrases, in verbs and nouns whose semantics reveals data that support the intention of the text ("it will be more severe"; "it will no longer be"; "very dry"; "temperature may increase"; "will suffer"; "scenario gets worse"; "-30%;" "+40%"; "[…] demanding effort and investment for the country and the cities to adapt"). These resources gathered in the so-called syncretic text arranged in those pages promote efficiency to the urgency of actions ("making-do"), since they announce rain or lack of rain in the country, and finally warn about risks, among other "sufferings," that may only be minimized through actions of effort and investment.

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